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EXAMINER	
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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/568,755	BOEHM ET AL.	
	Examiner	Art Unit	
	DANIEL MCNALLY	1791	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *3* MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *29 October 2008*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-21* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-21* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *29 October 2008* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☒ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Drawings

1. The drawings were received on 10/29/2008. These drawings are accepted.

Claim Rejections - 35 USC § 102

2. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (a) the invention was known or used by others in this country, or patented or described in a printed publication in this or a foreign country, before the invention thereof by the applicant for a patent.
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.
>
> (e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

3. Claims 1, 3, 4, 7, 10, 19 and 20 are rejected under 35 U.S.C. 102(b) as being anticipated by Cairncross et al. [US5356751, newly cited, herein "Cairncross"].

Cairncross discloses a method of gluing particles which are considered to be microcomponents to a substrate. The method comprises providing a substrate, applying a fine powder adhesive to the substrate, wherein the powder adhesive can melt with the application of heat and is therefore considered a hot melt, the adhesive is applied in a pattern so that some areas of the substrate are covered with adhesive while other are uncovered, applying particles to the substrate by melting the adhesive using direct heat or laser and bonding the particles during cooling of the adhesive below its melting point (column 1, lines 33-46; column 4, lines 48-64; column 5, lines 12-29). The

particles are considered to be "microcomponents" in the broadest interpretation of the term microcomponent.

With regard to claim 3, Cairncross discloses the adhesive can be in fine powder form which is considered to e granules.

With regard to claim 4, Cairncross discloses using laser to melt the adhesive and produce tacky areas for the particles to bond to.

With regard to claims 7 and 10, Cairncross discloses electrostatically depositing the adhesive powder to the substrate.

With regard to claim 19, Cairncross discloses a microsystem component comprising a particle or "microcomponent" bonded to a substrate wherein the adhesive bonding is performed by a powder hotmelt adhesive.

With regard to claim 20, Cairncross discloses the particles can have a size from 0.25μm to 2000μm (column 6, lines 43-46).

4. Claims 1, 3, 7, 10 and 19 are rejected under 35 U.S.C. 102(a) and 102(e) as being anticipated by Magnin et al. [US2004/0265504, of record, previously cited, herein "Magnin"].

Magnin discloses a method of bonding substrates using a powder adhesive. The method comprises providing two substrates to be bonded, providing a powder adhesive, depositing the powder onto one of the substrates, activating the adhesive with heat, contacting the substrates together with the adhesive there between, and curing the adhesive (paragraphs 0013-0023). Magnin discloses the powder is applied in pattern on the surface and therefore a portion of the surface is uncovered. One of the substrates

can be considered a microcomponent in the broadest interpretation of the term "microcomponent" because there is no specific requirements that define a microcomponent from the substrates of Magnin.

With regard to claim 3, Magnin discloses the adhesive is applied as granules.

With regard to claim 7, Magnin discloses the powder can be applied by electrostatic deposition, wherein the powder can be charged or the substrate can be charged over the entire surface or to a patterned surface.

With regard to claim 10, Magnin discloses the powder is applied electromagnetically to the whole surface or to a selectively charged surface (paragraph 0047) and Magnin discloses applying heat or radiant energy to surface.

With regard to claim 19, the above discussion of Magnin discloses a method of making a microsystem, and therefore also disclose the microsystem formed by the discussed method.

Claim Rejections - 35 USC § 103

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

6. Claims 2 and 4 are rejected under 35 U.S.C. 103(a) as being unpatentable over either one of Cairncross or Magnin, and in view of Adams [US5422146, newly cited].

Cairncross discloses a method of gluing particles which are considered to be microcomponents to a substrate. Magnin discloses a method of bonding substrates

using a powder adhesive. Applicant is referred to paragraphs 3 and 4 for a detailed discussion of Cairncross and Magnin respectively. Both teach applying a layer of hot melt adhesive to the surface of a substrate, and heating the layer at bonding regions. Cairncross teaching heating using a laser which is a focusable heat source, however Magnin is silent as to using a focusable heat source, and both references are silent as to removing excess adhesive that is not heated in the heating step.

Adams discloses a method of applying a polymeric powder material to a substrate. The method comprises applying the powder to the substrate, irradiating a portion of the powder with a heat source, such as a laser, to bond the powder to the substrate, and removing the powder that is not bonded to the surface of the substrate by the heating step (column 1, line 56 – column 2, line 12; column 2, lines 52-59).

It would have been obvious to one of ordinary skill in the art at the time of invention to modify the method of Magnin by using a laser heat source as taught by Adams in order to precisely control the desired region that is irradiated with the radiant energy from the laser, and to modify either one of Cairncross or Magnin by removing excess powder as taught by Adams in order to recycle the powder and reduce the overall waste of the process.

7. Claims 5 and 8 are rejected under 35 U.S.C. 103(a) as being unpatentable over either one of Cairncross or Magnin, and in view of Dettling [US3419409, of record, previously cited].

Cairncross discloses a method of gluing particles which are considered to be microcomponents to a substrate. Magnin discloses a method of bonding substrates

using a powder adhesive. Applicant is referred to paragraphs 3 and 4 for a detailed discussion of Cairncross and Magnin respectively. Both Cairncross and Magnin are silent as to heating the substrate and immersing the heated substrate in the powder adhesive.

Dettling discloses a method of applying a powder coating to a surface of a substrate. Dettling discloses providing the coating material in the form of pulverulent granules in a fluidized bed, heating the surface of the substrate to be coated, and immersing the heated substrate into the fluidized bed to form a coating of the powder material on the surface of the substrate (column 1, lines 20-50).

It would have been obvious to one of ordinary skill in the art at the time of invention to modify the method either one of Cairncross or Magnin by heating the substrate and immersing the substrate in a fluidized bed of powder material as taught by Dettling in order to form a uniform coating of the powder material on the substrate.

With regard to claim 8, Dettling discloses the powder will coat onto any part of the substrate that is heated to a sufficient temperature. Cairncross and Magnin disclose it is advantageous to coat only a pattern of the substrate in order to reduce the total amount of powder used. One of ordinary skill in the art at the time of invention would have readily appreciated heating a pattern of the surface including any raised or lowered surfaces so that the powered will only coat the patterned surfaced in order to reduce the total amount of powder material used.

8. Claims 6 and 21 are rejected under 35 U.S.C. 103(a) as being unpatentable over either one of Cairncross or Magnin, and in view of Lauchenauer [US3922418, of rerecord, previously cited].

Cairncross discloses a method of gluing particles which are considered to be microcomponents to a substrate. Magnin discloses a method of bonding substrates using a powder adhesive. Applicant is referred to paragraphs 3 and 4 for a detailed discussion of Cairncross and Magnin respectively. Both Cairncross and Magnin disclose methods of applying a powder to a substrate. Both references are silent as to applying the powder to discrete surfaces areas using a contoured screen.

Lauchenauer discloses a method of applying a coating of powder material. Lauchenauer teaches the powder can be applied though a screen and that a discontinuous coating of powder can be applied to the substrate using the screen (column 6, lines 34-46).

It would have been obvious to one of ordinary skill in the art at the time of invention to modify the method of either one of Cairncross or Magnin by applying the powder in a discontinuous coating using a screen as taught by Lauchenauer in order to reduce the total amount of powder used by only applying powder to the desired areas.

With regard to claim 21, the adhesive applied though the screen will be applied as dispersion.

9. Claim 9 is rejected under 35 U.S.C. 103(a) as being unpatentable over either one of Cairncross or Magnin, and in view of Hoffman [DE3508114C, newly cited] and Doi et al. [US3662395, of record, previously cited therein "Doi"].

Cairncross discloses a method of gluing particles which are considered to be microcomponents to a substrate. Magnin discloses a method of bonding substrates using a powder adhesive. Applicant is referred to paragraphs 3 and 4 for a detailed discussion of Cairncross and Magnin respectively. Both Cairncross and Magnin disclose methods of applying a powder to a substrate. Both references are silent as to applying the powder by rollering.

Hoffman discloses powder adhesives can be applied to a substrate. The method comprises applying an adhesive powder in the form of toner applied using electrostatic copying techniques.

Doi discloses a method of applying a powder material to a substrate using an electrostatic copying technique. The method comprises providing a drum (1) or roller, electro-statically charging the surface of the drum, applying a powdery material to the charged drum, transferring the powder material from the charged drum to the substrate, and heating the powder to bond the powder to the substrate (column 3, line 66 - column 4, line 15).

It would have been obvious to one of ordinary skill in the art at the time of invention to modify the method of either one of Cairncross or Magnin by electro-statically charging the roller, transferring the powder to the charged roller, and transferring the powder from the roller to the substrate as taught by Hoffman and Doi in order to form a pattern of powder material on a surface of the substrate without wasting extra powder.

10. Claims 11, 12 and 13 are rejected under 35 U.S.C. 103(a) as being unpatentable over either one of Cairncross or Magnin, and in view of Bertelsen [US2947625, of record, previously cited].

Cairncross discloses a method of gluing particles which are considered to be microcomponents to a substrate. Magnin discloses a method of bonding substrates using a powder adhesive. Applicant is referred to paragraphs 3 and 4 for a detailed discussion of Cairncross and Magnin respectively. Both Cairncross and Magnin disclose methods of applying a powder to a substrate. Both references are silent as to using a transfer sheet to coat the powder onto the surface of the substrate.

Bertelsen discloses a method of coating a powder material onto a substrate. The method comprises developing a powder material onto a transfer sheet, positioning the transfer sheet over a substrate to which the powder material is to be transferred, mechanically pressing the powder material from the transfer sheet to the final substrate using a roller and using heat to bond the powder to the substrate (column 2, line 8—column 3, line 49).

It would have been obvious to one of ordinary skill in the art at the time of invention to modify the method of either one of Cairncross or Magnin by using a transfer sheet as taught by Bertelsen in order to apply the powder to the desired areas of the substrate without wasting extra powder material.

11. Claims 14 and 16 are rejected under 35 U.S.C. 103(a) as being unpatentable over either one of Cairncross or Magnin, and in view of Karem et al. [US6099679, of record, previously cited, herein "Karem"].

Cairncross discloses a method of gluing particles which are considered to be microcomponents to a substrate. Magnin discloses a method of bonding substrates using a powder adhesive. Applicant is referred to paragraphs 3 and 4 for a detailed discussion of Cairncross and Magnin respectively. Both Cairncross and Magnin disclose methods of applying a powder to a substrate. Both references are silent as to preheating the surface to which the adhesive is applied, and after heating by means of a focusable heat source or globally.

Karem discloses a method of powder coating. The method comprises providing a substrate and a pulverulent adhesive, pre-heating the substrate, applying the powder adhesive to the substrate, and heating the powder to a temperature to ensure the powder sticks to the substrate (column 2, lines 1-59). Karem discloses the afterheating can take place using a focusable infrared radiation source or a global hot-air source.

It would have been obvious to one of ordinary skill in the art at the time of invention to modify the method of either one of Cairncross of Magnin by preheating the substrate as taught by Karem in order to ensure the powder material sticks to the substrate when the powder is first applied.

12. Claims 17 and 18 are rejected under 35 U.S.C. 103(a) as being unpatentable over either one of Cairncross or Magnin, and in view of Kalbe et al. [US6515048, of record, previously cited, herein "Kalbe"].

Cairncross discloses a method of gluing particles which are considered to be microcomponents to a substrate. Magnin discloses a method of bonding substrates using a powder adhesive. Applicant is referred to paragraphs 3 and 4 for a detailed

discussion of Cairncross and Magnin respectively. Both Cairncross and Magnin disclose methods of applying a powder to a substrate. Both references are silent as to the particle size of the adhesive powder.

Kalbe discloses a method of forming a coating of adhesive powder material onto a substrate. Kalbe discloses the adhesive powder material should have a particle size of less than 200 microns and preferably less than 100 microns in order to ensure the adhesive layer is as uniform as possible (column 3, lines 51-57).

It would have been obvious to one of ordinary skill in the art at the time of invention to modify the method of either one of Caircross or Magnin by using particles that are less than 100 microns in size as taught by Kalbe in order to ensure the adhesive coating is as uniform as possible.

13. Claims 1, 3,7,10, and 19-20 are rejected under 35 U.S.C. 103(a) as being unpatentable over either one of the Applicant's Admitted Prior Art [herein "APA"], Derand et al. [US2003/0029742, of record, previously cited, herein "Derand"] or Ohman [US6126765, of record, previously cited], and in view either one of Cairncross or Magnin.

APA found in the applicant's specification on page 1 recites, "microcomponents are conventionally glued using viscous adhesives," and that the mircocomponents are glued to a substrate.

Either one of Derand or Ohman, as recited by the applicant on page 1 of the applicant's specification disclose methods for bonding microstructures using viscous hot melt adhesives. The method comprises applying a hot melt adhesive to one of a

substrate or a microcomponent, heating the hot melt adhesive, contacting the substrate and the microcomponent together with the adhesive there between, and allowing a bond to form between the substrate and the microcomponent (Derand paragraphs 0017-0022: Ohman column 1, lines 27-41).

APA, Derand and Ohman are silent as to using a pulverulent adhesive and how to apply pulverulent adhesive.

Cairncross discloses a method of gluing particles which are considered to be microcomponents to a substrate. The method comprises providing a substrate, applying a fine powder adhesive to the substrate, wherein the powder adhesive can melt with the application of heat and is therefore considered a hot melt, the adhesive is applied in a pattern so that some areas of the substrate are covered with adhesive while other are uncovered, applying particles to the substrate by melting the adhesive using direct heat or laser and bonding the particles during cooling of the adhesive below its melting point (column 1, lines 33-46; column 4, lines 48-64; column 5, lines 12-29). The particles are considered to be "microcomponents" in the broadest interpretation of the term microcomponent.

Magnin discloses a method of bonding substrates using a powder adhesive. Magnin discloses the disadvantages of using liquid adhesives when compared to powder adhesives, such as the extra time and energy required to dry the liquid adhesive on the substrates (paragraph 0003). The method comprises providing two substrates to be bonded, providing a powder adhesive, depositing the powder onto one of the substrates, activating the adhesive with heat, contacting the substrates together with the

adhesive there between, and curing the adhesive (paragraphs 0013-0023). Magnin discloses the powder is applied to the entire surface or a pattern on the surface.

It would have been obvious to one of ordinary skill in the art at the time of invention to modify the method of either one of APA, Derand or Ohman by using a powder adhesive as taught by either one of Cairncross or Magnin in order to reduce the time and energy required to apply the adhesive to the surface of the substrate to be bonded, and apply the adhesive in a pattern as taught by Caincross or Magnin in order to reduce the total amount of adhesive used.

With regard to claim 3, Cairncross and Magnin disclose the adhesive is applied as granules.

With regard to claim 7, Cairncross and Magnin disclose the powder can be applied by electrostatic deposition, wherein the powder can be charged or the substrate can be charged over the entire surface or to a patterned surface.

With regard to claim 10, Cairncross and Magnin disclose the powder is applied electromagnetically to the whole surface or to a selectively charged surface (paragraph 0047) and Magnin discloses applying heat or radiant energy to surface.

With regard to claims 19 and 20, the above discussion of Cairncross and Magnin discloses a method of making a microsystem, and therefore also disclose the microsystem formed by the discussed method. Derand, Ohman and Cairncross disclose components of the microsystems that are within the range of 1-1000 microns.

14. Claims 2 and 4 are rejected under 35 U.S.C. 103(a) as being unpatentable over either one of APA, Derand or Ohman in view of either one of Cairncross or Magnin, and further in view of Adams.

Either one of APA, Derand or Ohman, as modified, discloses a method of gluing microcomponents to a substrate. Applicant is referred to paragraph 13 for a detailed discussion of APA, Derand or Ohman, as modified. The references of paragraph 13 teach applying a layer of hot melt adhesive to the surface of a substrate, and heating the layer at bonding regions. Cairncross teaches heating using a laser which is a focusable heat source, however Magnin is silent as to using a focusable heat source, and both references are silent as to removing excess adhesive that is not heated in the heating step.

Adams discloses a method of applying a polymeric powder material to a substrate. The method comprises applying the powder to the substrate, irradiating a portion of the powder with a heat source, such as a laser, to bond the powder to the substrate, and removing the powder that is not bonded to the surface of the substrate by the heating step (column 1, line 56 – column 2, line 12; column 2, lines 52-59).

It would have been obvious to one of ordinary skill in the art at the time of invention to modify the method of the references of paragraph 13 by using a laser heat source as taught by Adams in order to precisely control the desired region that is irradiated with the radiant energy from the laser, and to modify the references of paragraph 13 by removing excess powder as taught by Adams in order to recycle the powder and reduce the overall waste of the process.

15. Claims 5 and 8 are rejected under 35 U.S.C. 103(a) as being unpatentable over either one of APA, Derand or Ohman in view of either one of Cairncross or Magnin, and further in view of Dettling.

Either one of APA, Derand or Ohman, as modified, discloses a method of gluing microcomponents to a substrate. Applicant is referred to paragraph 13 for a detailed discussion of APA, Derand or Ohman, as modified. The references of paragraph 13 are silent as to heating the substrate and immersing the heated substrate in the powder adhesive.

Dettling discloses a method of applying a powder coating to a surface of a substrate. Dettling discloses providing the coating material in the form of pulverulent granules in a fluidized bed, heating the surface of the substrate to be coated, and immersing the heated substrate into the fluidized bed to form a coating of the powder material on the surface of the substrate (column 1, lines 20-50).

It would have been obvious to one of ordinary skill in the art at the time of invention to modify the method the references of paragraph 13 by heating the substrate and immersing the substrate in a fluidized bed of powder material as taught by Dettling in order to form a uniform coating of the powder material on the substrate.

With regard to claim 8, Dettling discloses the powder will coat onto any part of the substrate that is heated to a sufficient temperature. Cairncross and Magnin disclose it is advantageous to coat only a pattern of the substrate in order to reduce the total amount of powder used. One of ordinary skill in the art at the time of invention would have readily appreciated heating a pattern of the surface including any raised or

lowered surfaces so that the powered will only coat the patterned surfaced in order to reduce the total amount of powder material used.

16. Claims 6 and 21 are rejected under 35 U.S.C. 103(a) as being unpatentable over either one of APA, Derand or Ohman in view of either one of Cairncross or Magnin, and further in view of Lauchenauer.

Either one of APA, Derand or Ohman, as modified, discloses a method of gluing microcomponents to a substrate. Applicant is referred to paragraph 13 for a detailed discussion of APA, Derand or Ohman, as modified. The references of paragraph 13 disclose methods of applying a powder to a substrate. The references of paragraph 13 are silent as to applying the powder to discrete surfaces areas using a contoured screen.

Lauchenauer discloses a method of applying a coating of powder material. Lauchenauer teaches the powder can be applied though a screen and that a discontinuous coating of powder can be applied to the substrate using the screen (column 6, lines 34-46).

It would have been obvious to one of ordinary skill in the art at the time of invention to modify the method of the references of paragraph 13 by applying the powder in a discontinuous coating using a screen as taught by Lauchenauer in order to reduce the total amount of powder used by only applying powder to the desired areas.

With regard to claim 21, the adhesive applied though the screen will be applied as dispersion.

17. Claim 9 is rejected under 35 U.S.C. 103(a) as being unpatentable over either one of APA, Derand or Ohman in view of either one of Cairncross or Magnin, and further in view of Hoffman and Doi.

Either one of APA, Derand or Ohman, as modified, discloses a method of gluing microcomponents to a substrate. Applicant is referred to paragraph 13 for a detailed discussion of APA, Derand or Ohman, as modified. The references of paragraph 13 disclose methods of applying a powder to a substrate. The references of paragraph 13 are silent as to applying the powder by rollering.

Hoffman discloses powder adhesives can be applied to a substrate. The method comprises applying an adhesive powder in the form of toner applied using electrostatic copying techniques.

Doi discloses a method of applying a powder material to a substrate using an electrostatic copying technique. The method comprises providing a drum (1) or roller, electro-statically charging the surface of the drum, applying a powdery material to the charged drum, transferring the powder material from the charged drum to the substrate, and heating the powder to bond the powder to the substrate (column 3, line 66 - column 4, line 15).

It would have been obvious to one of ordinary skill in the art at the time of invention to modify the method the references of paragraph 13 by electro-statically charging the roller, transferring the powder to the charged roller, and transferring the powder from the roller to the substrate as taught by Hoffman and Doi in order to form a pattern of powder material on a surface of the substrate without wasting extra powder.

18. Claims 11, 12 and 13 are rejected under 35 U.S.C. 103(a) as being unpatentable over either one of APA, Derand or Ohman in view of either one of Cairncross or Magnin, and further in view of Bertelsen.

Either one of APA, Derand or Ohman, as modified, discloses a method of gluing microcomponents to a substrate. Applicant is referred to paragraph 13 for a detailed discussion of APA, Derand or Ohman, as modified. The references of paragraph 13 disclose methods of applying a powder to a substrate. The references of paragraph 13 are silent as to using a transfer sheet to coat the powder onto the surface of the substrate.

Bertelsen discloses a method of coating a powder material onto a substrate. The method comprises developing a powder material onto a transfer sheet, positioning the transfer sheet over a substrate to which the powder material is to be transferred, mechanically pressing the powder material from the transfer sheet to the final substrate using a roller and using heat to bond the powder to the substrate (column 2, line 8—column 3, line 49).

It would have been obvious to one of ordinary skill in the art at the time of invention to modify the method the references of paragraph 13 by using a transfer sheet as taught by Bertelsen in order to apply the powder to the desired areas of the substrate without wasting extra powder material.

19. Claims 14 and 16 are rejected under 35 U.S.C. 103(a) as being unpatentable over either one of APA, Derand or Ohman in view of either one of Cairncross or Magnin, and further in view of Karem.

Either one of APA, Derand or Ohman, as modified, discloses a method of gluing microcomponents to a substrate. Applicant is referred to paragraph 13 for a detailed discussion of APA, Derand or Ohman, as modified. The references of paragraph 13 disclose methods of applying a powder to a substrate. The references of paragraph 13 are silent as to preheating the surface to which the adhesive is applied, and after heating by means of a focusable heat source or globally.

Karem discloses a method of powder coating. The method comprises providing a substrate and a pulverulent adhesive, pre-heating the substrate, applying the powder adhesive to the substrate, and heating the powder to a temperature to ensure the powder sticks to the substrate (column 2, lines 1-59). Karem discloses the afterheating can take place using a focusable infrared radiation source or a global hot-air source.

It would have been obvious to one of ordinary skill in the art at the time of invention to modify the method the references of paragraph 13 by preheating the substrate as taught by Karem in order to ensure the powder material sticks to the substrate when the powder is first applied.

20. Claims 17 and 18 are rejected under 35 U.S.C. 103(a) as being unpatentable over either one of APA, Derand or Ohman in view of either one of Cairncross or Magnin, and further in view of Kalbe.

Either one of APA, Derand or Ohman, as modified, discloses a method of gluing microcomponents to a substrate. Applicant is referred to paragraph 13 for a detailed discussion of APA, Derand or Ohman, as modified. The references of paragraph 13

disclose methods of applying a powder to a substrate. The references of paragraph 13 are silent as to the particle size of the adhesive powder.

Kalbe discloses a method of forming a coating of adhesive powder material onto a substrate. Kalbe discloses the adhesive powder material should have a particle size of less than 200 microns and preferably less than 100 microns in order to ensure the adhesive layer is as uniform as possible (column 3, lines 51-57).

It would have been obvious to one of ordinary skill in the art at the time of invention to modify the method the references of paragraph 13 by using particles that are less than 100 microns in size as taught by Kalbe in order to ensure the adhesive coating is as uniform as possible.

Response to Arguments

21. Applicant's arguments with respect to claims 1-21 have been considered but are moot in view of the new ground(s) of rejection. Applicant argues none of the previously applied references teach adhering microcomponents. Any of the substrates of the previously applied art can be considered a microcomponent, because microcomponents as broadly interpreted do not require any specific limitations that are different from the substrates of the previously applied art.

Applicant argued most of the secondary references teach ways of applying a powder, however the powder is not used as an adhesive. The powders of the previously cited secondary references generally were not used as adhesives, however Magnin taught using a polymeric powdered adhesive and the application methods of the

secondary reference were used polymeric powders, therefore the methods could have been used to apply the powder of Magnin.

Conclusion

22. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL.** See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to DANIEL MCNALLY whose telephone number is (571)272-2685. The examiner can normally be reached on Monday - Friday 8:00AM-4:30PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Richard Crispino can be reached on (571) 272-1226. The fax phone

number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Daniel McNally/
Examiner, Art Unit 1791

/John L. Goff/
Primary Examiner, Art Unit 1791

/DPM/
January 7, 2009